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PATENT
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS AND PATENT INTERFERENCES

Applicants	:	Motohiro Ishikawa, et al.
Serial No.	:	08/682,997
For	:	IMAGE PICKUP APPARATUS
Filed	:	July 18, 1996
Examiner	:	Anand Shashikant Rao
Art Unit	:	2613

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APPLICANTS' BRIEF ON APPEAL

By Notice of Appeal, timely filed by mail certification on June 29, 2005, applicants appealed the decision of the Examiner stating final rejections of claims 29-42 in the Office Action mailed on March 30, 2005.

This Brief and its Appendix are filed with the filing fee of $500.00. Please charge any other fees for the filing of this Brief to our Deposit Account 03-3415.

(1) Real Party in Interest

The real party in interest is the Assignee of the subject application, namely, Canon Kabushiki Kaisha of Tokyo, Japan, as is evidenced by an Assignment recorded on November 5, 1996, at Reel/Frame 8213/0242. The subject application is based on two continued prosecution

applications, filed on May 5, 1999 and on June 6, 2000.

(2) Related Appeals and Interferences

A previous Notice of Appeal was filed on December 6, 2004 in response to an Office Action mailed on September 7, 2005. A new Office Action was issued on March 30, 2005 withdrawing the finality of the September 7, 2005 Office Action and addressing all the claims in the application including claims 43-46. This new Action resulted in withdrawal of the earlier appeal.

(3) Status of Claims

Claims 1-28 have been cancelled. Claims 29-46 have been rejected.

The claims on appeal are claims 29-46. The Appendix hereto sets forth all appealed claims.

(4) Status of Amendments

No amendments after final rejection have been filed.

(5) Summary of Claimed Subject Matter

The subject invention is directed to an image pickup apparatus (Image pickup apparatus 101, FIGS. 1 and 5) comprising an image pickup device (CCD 104 + A/D conversion part 105, FIGS. 1 and 5) for forming a digital image signal (Specification, page 15, lines 5-11), a color space information memory (ROM 108, FIGS. 1 and 5) that stores color space information (Specification, page 17, lines 17-19), a color bit number converting part (Color converting part 107, FIGS. 1 and 5) arranged to convert a color bit number of the digital image signal in response to an external signal from an external apparatus (PC 102, FIGS. 1 and 5; Specification, page 17, lines 9-16), a device recognition attribute information memory (ROM 108, FIG. 5) for

storing device recognition attribute information (Specification, page 25, lines 5-8), and an interface part (I/F 112, FIGS. 1 and 5) arranged to communicate with the external apparatus (PC 102, Specification, page 13, lines 2-9; Specification, page 21, lines 15-16; Specification, page 25, lines 13-20). The interface part (I/F 112, FIGS. 1 and 5) of the image pickup apparatus sends the device recognition attribute information to the external apparatus (Specification, page 25, lines 20-24). The interface part (I/F 112, FIGS. 1 and 5) then receives the external signal with which the color bit number of the digital image signal is controlled using the color space information according to a result of recognition by the external apparatus (Specification, page 14, lines 17-22; Specification, page 17, lines 7-9; Specification, page 25, line 25 to page 26, line 3).

The subject invention is also directed to an image pickup method, comprising picking up of an image to form a digital image signal (Specification, page 15, lines 5-11), converting color bit number of the digital image signal in response to an external signal from an external apparatus (Specification, page 17, lines 9-16; PC 102, FIGS. 1 and 5), storing device recognition attribute information in a device recognition attribute information memory (Specification, page 25, lines 5-8; ROM 108, FIG. 5), storing a color space information (Specification, page 17, lines 17-19) in a color space information memory (ROM 108, FIGS. 1 and 5), sending the device recognition attribute information to the external apparatus (Specification, page 21, lines 20-24) through an interface part (I/F 112, FIGS. 1 and 5), and receiving the external signal with which the color bit number of the digital image signal is controlled using the color space information according to a result of recognition by the external apparatus (Specification, page 14, lines 17-22; Specification, page 17, lines 7-9; Specification, page 25, lines 25-28).

The subject invention is further directed to an image signal processing apparatus (PC 102, FIGS. 1 and 5) electrically connectable to an image pickup device (CCD 104 + A/D conversion part 105, FIGS. 1 and 5; Specification, page 13, lines 2-9) that forms a digital image signal (Specification, page 15, lines 5-11). The image pickup apparatus (Image pickup apparatus 101, FIGS. 1 and 5) comprises a color bit number converting part (Color converting part 107, FIGS. 1 and 5) arranged to convert color bit number of the digital image signal in response to an external signal (Specification, page 17, lines 9-16), a device recognition attribute information memory (ROM 108, FIG. 5) for storing device recognition attribute information (Specification, page 25, lines 5-8), a color space information memory (ROM 108, FIGS. 1 and 5) that stores color space information (Specification, page 17, lines 17-19) and an interface part (I/F 112, FIGS. 1 and 5) arranged to send the device recognition attribute information to the image signal processing apparatus (Specification, page 25, lines 20-24) and receive the external signal with which the color bit number of the digital image signal is controlled using the color space information according to a result of recognition by the external apparatus (Specification, page 14, lines 17-22; Specification, page 17, lines 7-9; Specification, page 25, line 25 to page 26, line 3). The image signal processing apparatus (PC 102, FIGS. 1 and 5) comprises a communication part (I/F 112, FIGS. 1 and 5) arranged to receive the device recognition attribute information (Specification, page 25, lines 9-15), and a control part (Control program 114, FIGS. 1 and 5) arranged to send the external signal to the image pickup apparatus through the communication part (I/F 112, FIGS. 1 and 5) to control the color bit number of the digital image signal according to a result of recognition by the recognizing part (Specification, page 14, lines 17-22; Specification, page 17, lines 7-9; Specification, page 25, lines 25-28). The present invention

also includes an image signal processing method for processing the digital image signal received from the image pickup device that forms the digital image signal.

The present invention is further directed to an image pickup apparatus (Image pickup apparatus 101, FIGS. 1 and 5) comprising an image sensor (CCD 104, FIGS. 1 and 5) that converts an optical image into an image signal (Specification, page 15, lines 5-9), a color bit number converting circuit (Color converting part 107, FIGS. 1 and 5) that converts color bit number according to a conversion memory (Specification, page 17, lines 7-19), and an interface (I/F 112, FIGS. 1 and 5) that receives an external instruction to change the color bit number (Specification, page 14, lines 6-9 and lines 17-22; Specification, page 17, lines 7-9). The invention is also directed to an image pickup method comprising image sensing by converting an optical image into an image signal (Specification, page 15, lines 5-9), color bit number converting for converting color bit number according to an output of a conversion memory (Specification, page 17, lines 7-19), and interfacing for receiving an external instruction to change the color bit number (Specification, page 14, lines 17-22; Specification, page 17, lines 7-9).

(6) Grounds of Rejection

The appeal presents a single issue, namely, whether the rejection of claims 29-46 under 35 U.S.C. § 103(a) as being unpatentable is in error.

(7) Argument

There are no rejections or objections under 35 U.S.C. § 112.

There are no rejections under 35 U.S.C. §§ 101 or 102.

All independent claims stand rejected only under 35 U.S.C. § 103.

A. Discussion of the Cited Prior Art

I. The Takizawa, et al. reference

The primary reference, i.e. Takizawa, et al., describes an electronic still camera which includes an image processing program, i.e. a DSP program, which can be easily altered or supplemented without replacing internal devices of the camera. The camera includes a microcomputer, a digital signal processor (DSP) and a DSP program memory (Abstract). The camera captures image information, pre-processes the data and converts it to digital image data using an A/D converter (Column 3, lines 2-9). The digital image data is then subjected to processing by the DSP, including compression, edge enhancement, etc., before it is stored in a storage medium (Column 3, lines 9-13). The DSP program which is used for operating the DSP, is stored in a DSP program memory which holds the DSP program in rewritable form (Column 3, lines 30-32). The DSP program is also maintained continuously in a program memory of the camera (Column 3, lines 40-41). Processing of the captured image data other than DSP processing is controlled by the microcomputer using a control program stored in microcomputer program memory (Column 3, lines 52-56).

The reference discloses that the camera also includes a communication circuit which can be used as a link between the microcomputer and an external device (Column 3, lines 61-65). Modifications or upgrades to the DSP program are accomplished by obtaining an updated DSP program from the external device via the communication circuit into the program memory of the camera and then rewriting the DSP program in the DSP program memory

(Column 4, lines 33-51). The communication circuit is also used to send image data from the storage medium of the camera to the external device (Column 4, lines 39-42).

II. The Lightbody, et al. reference

The Lightbody, et al. reference teaches a video editing system including a peripheral board which plugs into a host computer having a display system. The reference discloses that the peripheral board is adapted to receive video data from a video device (e.g. a VTR) using a video input/output port and includes a subsampler/color space converter which reads the received video data, converts the data to the format required by the display system and subsamples the data to fit the subsample window of the display (Col. 3, lines 30-49). The operation of the subsampler/color space converter is controlled by control registers, which are read and written by a peripheral microprocessor of the peripheral board. (Col. 5, lines 2-5) The Lightbody, et al. reference describes the operation and control the subsampler/color space converter as follows:

> "Subsampler and color space converter 80 may be provided together in a single chip, for instance the CL-PX0070 Video Window Generator from Pixel Semiconductor. This part provides conversion from a variety of standard digital video input formats to a variety of RGB encoding outputs; the RGB format chosen will match that required by display system 18 of the host computer. The part has internal control registers 84 that specify color conversion, scaling, pixel resolution processing, and window clipping parameters. Input pins provide the clocking and data for the input video, and read requests for converted pixel output. Output pins provide the converted, subsampled output pixel values and other status information, for instance the state of the chip's internal output FIFO." (Col. 5, lines 14-27).

The reference further discloses that the converted and subsampled video data is buffered in subsample FIFO (Col. 5, lines 5-7), which is 32 bits wide, which is enough to accommodate the largest common RGB encoding, i.e., 8 bits for each of red, green and blue

colors, with a 24-bit pixel encoding being padded out to fill 32 bits (Col. 5, lines 35-40).

B. The Final Rejections

In the Office Action mailed on March 30, 2005, claims 29-46, including independent claims 29, 33, 35, 37, 43 and 45, were rejected under 35 U.S.C. 103(a) as being unpatentable over the Takizawa, et al. reference (U.S. Patent No. 5,734,425) in view of the Lightbody, et al. reference (U.S. Patent No. 5,471,577). In discussing claim 29, some or all of the patentable features of the invention mentioned with respect to this claim are also contained in independent claims 33, 35, 37, 43 and 45, as set forth in the argument below. Therefore, a finding that these features are patentable will render claim 29 patentable and will carry over to claims 33, 35, 37, 43 and 45, rendering these claims patentable.

C. Argument re Patentability and Controlling Authority

On Behalf of Claim 29

The subject invention is directed to an image pickup apparatus connected to an external apparatus and capable of transferring a large amount of picked-up image data at high speed, the image pickup apparatus including a color space converting part which converts the video signal according to a number-of-color setting value set at a control program of the external apparatus and subjects the video signal to color space processing into a format required for handling by the external apparatus.

These features of the invention are expressed in independent claim 29 in the following claim recitations:

Claim 29

"a color space information memory that stores color space information;

a color bit number converting part arranged to convert color bit number of said digital image signal in response to an external signal from an external apparatus;

a device recognition attribute information memory for storing device recognition attribute information; and

an interface part arranged to communicate with the external apparatus,

wherein said interface part sends said device recognition attribute information to said external apparatus,

then said interface part receives said external signal with which the color bit number of said digital image signal is controlled using said color space information according to a result of recognition by said external apparatus."

Additionally, these features are expressed in the other independent claims, i.e. claims 33, 35, 37, 43 and 45, as follows:

Claim 33

"converting color bit number of said digital image signal in response to an external signal from an external apparatus;

storing device recognition attribute information in a device recognition attribute information memory;

storing a color space information in a color space information memory;

sending said device recognition attribute information to said external apparatus through an interface part; and

receiving said external signal with which the color bit number of said digital image signal is controlled using said color space information according to a result of recognition by said external apparatus."

Claim 35

"wherein said image pickup apparatus comprises a color bit number converting part arranged to convert color bit number of said digital image signal in response to an external signal,

a device recognition attribute information memory for storing device recognition attribute information;

a color space information memory that stores color space information, and

an interface part arranged to send said device recognition attribute information to said image signal processing apparatus and receive said external signal with which the color bit number of said digital image signal is controlled using said color space

information according to a result of recognition by said external apparatus, comprising:

a communication part arranged to receive said device recognition attribute information from said image pickup apparatus to recognize said image pickup apparatus;

a recognizing part arranged to recognize the image pickup apparatus in response to said device recognition attribute information; and

a control part arranged to send the external signal to said image pickup apparatus through said communication part to control the color bit number of said digital image signal according to a result of recognition by said recognizing part."

Claim 37

"a color bit number converting part arranged to convert color bit number of said digital image signal in response to an external signal,

a device recognition attribute information memory for storing device recognition attribute information,

a color space information memory that stores color space information, and

an interface part arranged to send said device recognition attribute information to said image signal processing apparatus and receive said external signal with which the color bit number of said digital image signal is controlled using said color space information according to a result of recognition by said external apparatus, comprising:

receiving said device recognition attribute information from said image pickup apparatus;

recognizing the image pickup apparatus in response to said device recognition attribute information; and

sending the external signal to said image pickup apparatus to control the color bit number of said digital image signal according to a result of the recognizing."

Claim 43

"a color bit number converting circuit that converts color bit number according to a conversion memory; and

an interface that receives an external instruction to change the color bit number."

Claim 45

"color bit number converting for converting color bit number according to an output of a conversion memory; and

interfacing for receiving an external instruction to change the color bit number."

With respect to the features of a color space information memory that stores color space information and a color bit number converting part arranged to convert color bit number of the digital image signal in response to an external signal from an external apparatus, the Examiner's reasoning underlying the final rejection of independent claim 29 is as follows:

> "Takizawa fails to specifically disclose a color space information memory that stores color space information, a color bit number converting part as a part of the image pickup system, wherein said color space converting part is arranged to convert the color bit number of said digital image signal in response to an external signal from an external apparatus, wherein said color space converting part converts the color space of said digital image signal in response to an external color control signal from an external apparatus, as in the claim. Lightbody discloses the use of a plurality of a color space information memories (Lightbody: column 5, lines 20-23) and a color space converting means (Lightbody: column 5, lines 14-25: "variety of R,G,B, encoding output format..."), arranged to convert the color bit number (Lightbody: column 5, lines 35-41) of said digital image signal (Lightbody: column 4, lines 15-25; column 5, lines 1-5) in response to an external signal from an external apparatus using said color space information (Lightbody: column 3, lines 35-40) in order to reduce an amount of image signals (Lightbody: column 5, lines 20-25: "pixel resolution processing") for output to a plurality of external devices (Lightbody: column 5, lines 42-53) for video editing applications (Lightbody: column 6, lines 43-65). It would have been obvious for one of ordinary skill in the art to incorporate the use of the Lightbody plurality of a color space information memory (Lightbody: column 5, lines 20-23) and a color space converting means (Lightbody: column 5, lines 14-15), wherein the color space converting apparatus would controlled in accordance with the external processing apparatus (Lightbody: column 4, lines 15-25; column 5, lines 1-5) for use in an image processing apparatus for output to a plurality of external devices (Lightbody: column 5, lines 42-53) as downloadable into the Takizawa program memory from the external interface (Takizawa: column 4, lines 52-63) in order to enable to Takizawa system have the capability for video editing applications (Lightbody: column 6, lines 43-65). The Takizawa system, now incorporating the Lightbody plurality of a color space information memory and a color bit number converting means as discussed above, has all of the features of claim 29."

The Examiner has thus acknowledged that the Takizawa, et al. patent fails to disclose a color bit number converting part for converting the color bit number of the digital image signal

in response to an external signal. Nonetheless, the Examiner then argues that this is disclosed in the Lightbody, et al. reference and that the combination of the Takizawa, et al. and Lightbody, et al. references would result in the claimed invention. The Examiner's arguments are believed to be in error in a number of respects.

First, contrary to the Examiner's contention, Lightbody, et al. does not teach or suggest a color bit number converting part for converting a color bit number of a digital image signal. Specifically, in the Lightbody, et al. reference, a color space converter (80, FIG. 2) is used to convert a digitized video signal from one type of encoding format to another. In particular, the conversion is from a YUV (luminance and color difference signal) format to a RGB (red, green and blue) format (See Lightbody, et al., Col. 4, lines 6-31) which matches the format required by the display system (Col. 5, lines 19-20). However, this type of format conversion does not equate to a color bit number conversion of an image signal, i.e. a conversion which involves changing the number of bits being used to represent each color in an image, and thus the number of colors stored in an image, so as to change the color depth of the image signal. There is simply nothing mentioned in the Lightbody, et al. reference of the color space converter 80 converting the color bit number of the image signal.

The passages in column 5, lines 35-41, column 4, lines 15-25 and column 5, lines 1-5 cited by the Examiner as explicitly teaching or suggesting that the color space converting means (color space converter 80) of Lightbody, et al. converts the color bit number of the digital image signal, do not, in fact, teach or suggest this feature. In particular, column 4, lines 15-25 of Lightbody, et al. merely disclose that a color of a pixel can be changed by varying the numerical values corresponding to the intensities of the red, green and blue components, and column 5,

lines 1-5 disclose that control registers control the operation of the color space converter. These passages clearly do not teach or suggest changing the color bit number, i.e. the number of bits used to represent each color, of the image signal.

Similarly, column 5, lines 35-41 of Lightbody, et al. fail to teach or suggest converting the color bit number of the image signal. In particular, this passage discloses that since the FIFO 90 is 32 bits wide, a 24-bit pixel encoding is padded out to fill a 32-bit word. As can be appreciated, the padding out of a 24-bit encoding to fill a 32-bit space is accomplished by adding an additional 8 bits of zeros, i.e. data which is wasted, and there is no conversion of the color bit number of the image signal. Therefore, there is no teaching in the passages cited by the Examiner, or anywhere else in the Lightbody, et al. reference, of converting the color bit number of the digital image signal.

Moreover, since the Lightbody, et al. reference does not teach or suggest converting the color bit number of the digital image signal, it cannot teach or suggest performing such conversion in response to an external signal. However, even if, as argued by the Examiner, the padding out of the image signal to fill a 32-bit FIFO width could amount to a color bit number conversion, this operation is not responsive to an external signal from an external apparatus. Rather, the padding out operation in Lightbody, et al. is performed in accordance with the available bit width of the FIFO, which is located on the same peripheral board as the color space converter and is not part of an external apparatus. Therefore, even if the Lightbody, et al. reference disclosed a color bit conversion operation, which it does not, there is no teaching or suggestion in Lightbody, et al. of performing such operation in response to an external signal from an external apparatus.

Thus, the Lightbody, et al. patent does not teach or suggest converting the color bit number of a digital image signal in response to an external signal from an external apparatus. Accordingly, for the Examiner to reach this construction of claim 29 based on the Takizawa, et al. and the Lightbody, et al. patents, would clearly constitute hindsight, which is improper. Ex parte Ohsumi, 21 USPQ2d 1020, 1025 (Bd. of Pat. App. 1991).

The error made by the Examiner is to draw on the hindsight knowledge of the claimed invention and to use it as a template for his own reconstruction of the prior art. This is prohibited as is set forth in Sensonics Inc. v. Aerosonic Corp., 38 USPQ2d 1551, 1554 (Fed. Cir. 1996):

> "To draw on hindsight knowledge of the patented invention, when the prior art does not contain or suggest that knowledge, is to use the invention as a template for its own reconstruction – an illogical and inappropriate process by which to determine patentability. W.L. Gore & Assoc. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983). The invention must be viewed not after the blueprint has been drawn by the inventor, but as it would have been perceived in the state of the art that existed at the time the invention was made. Interconnect Planning Corp. v. Feil, 774 F.2d 1132, 1138, 227 USPQ 543, 547 (Fed. Cir. 1985)."

Because Lightbody, et al. does not disclose converting the color bit number of the digital image signal, it would not have been obvious to modify Takizawa, et al. in the manner argued by the Examiner without using the claimed invention as a guide. Accordingly, applicant's claim 29 is patentable over the cited art.

Furthermore, neither the Lightbody, et al. reference nor the Takizawa, et al. reference disclose or suggest a device recognition attribute information memory for storing device recognition attribute information, or an interface part sending the device recognition attribute

information to an external apparatus and then receiving an external signal with which the color bit number of the digital image signal is controlled using the color space information according to a result of recognition by the external apparatus.

With respect to these features, the Examiner has argued that Takizawa, et al., teach as follows:

> "...a device recognition attribute information memory for storing device recognition attribute information (Takizawa: column 3, lines 9-12); an interface part arranged to communicate with the external apparatus (Takizawa: column 4, lines 57-60), wherein said interface part sends said device recognition attribute information to said external apparatus (Takizawa: column 3, lines 60-64), then said interface part receives said external control signal with which the digital image signal is controlled (Takizawa: column 3, lines 64-65) according to the result of recognition by said external apparatus (Takizawa: column 3, lines 51-62), as in claim 29."

The Examiner's above interpretation of the Takizawa, et al. reference is believed to be in error. In particular, there is nothing taught or suggested in the Takizawa, et al. reference of a device recognition attribute information memory for storing device recognition attribute information or of an interface part sending device recognition attribute information to an external apparatus and receiving an external signal to control an operation performed on the image signal according to a result of recognition by the external apparatus.

Specifically, column 3, lines 9-12 of Takizawa, et al., cited by the Examiner as disclosing the device recognition attribute information memory, disclose that digitized image signals are sent to a buffer memory, then passed through a DSP for image processing and thereafter stored in a storage medium. This passage, thus, only teaches a buffer memory and a storage medium for storing digitized image signals and processed image signals, respectively, and does not mention or suggest any device recognition attribute information being stored in

either of these memory components. Further, column 3, lines 60-64 of Takizawa, et al., cited by the Examiner, teach only that the electronic still camera may be linked to an external device using a communication circuit. Although the communication circuit of Takizawa, et al. may be characterized as an interface part, there is again no mention in this passage or anywhere else in Takizawa, et al. of the device recognition attribute information or of such information being sent by the communication circuit to the external apparatus. Similarly, column 3, lines 64-65 and column 3, lines 51-62 of Takizawa, et al. cited by the Examiner are completely silent as to the device recognition attribute information or as to any result recognition by the external device. Rather, these passages describe a microcomputer program memory of the microcomputer of the camera and the communication link between the microcomputer and the external device.

In addition, there is no teaching or suggestion in Takizawa, et al. or in Lightbody, et al. of the interface part receiving the external signal with which the color bit number of the digital image signal is controlled. The Examiner has acknowledged that Takizawa, et al. fail to disclose a color space converting part being arranged to convert the color bit number of the digital image signal in response to an external signal from an external apparatus. As discussed above, the Lightbody, et al. reference also does not teach or suggest a color bit number converting operation. Thus, as in Takizawa, et al., nothing is taught or suggested in Lightbody, et al. of an interface part receiving an external signal with which the color bit number of the image signal is controlled.

The embodiments of Takizawa, et al. and Lightbody, et al. viewed together thus fail to teach or suggest the features recited in applicant's claim 29, namely, a color bit number converting part arranged to convert color bit number of the digital image signal in response to an

external signal from an external apparatus, a device recognition attribute information memory for storing device recognition attribute information, and an interface part arranged to communicate with the external apparatus, wherein the interface part sends the device recognition attribute information to the external apparatus, then the interface part receives the external signal with which the color bit number of the digital image signal is controlled using the color space information according to a result of recognition by the external apparatus.

For all the above reasons, claim 29 is patentable over the cited art.

On Behalf of Claim 33

As above-indicated, claim 33 includes the features of claim 29 of converting color bit number of the digital image signal in response to an external signal from an external apparatus, storing device recognition attribute information in a device recognition attribute information memory, storing a color space information in a color space information memory, sending the device recognition attribute information to the external apparatus through an interface part, and receiving the external signal with which the color bit number of the digital image signal is controlled using the color space information according to a result of recognition by the external apparatus. With respect to these claimed features, the Examiner has basically repeated his reasoning underlying the rejection of independent claim 29. Accordingly, for like reasons as discussed above with respect to claim 29, claim 33 is patentable over the cited art.

On Behalf of Claim 35

As above-indicated, claim 35 mentions the features of claim 29 of a color bit number

converting part arranged to convert color bit number of the digital image signal in response to an external signal, a device recognition attribute information memory for storing device recognition attribute information and an interface part arranged to send the device recognition attribute information to the image signal processing apparatus and receive the external signal with which the color bit number of the digital image signal is controlled using the color space information according to a result of recognition by the external apparatus. With respect to these mentioned features, the Examiner has basically repeated his reasoning underlying the rejection of independent claim 29. Accordingly, for like reasons as discussed with respect to claim 29, these mentioned features of claim 35 are patentable over the cited art.

Claim 35 claims an external apparatus comprising a communication part arranged to receive the device recognition attribute information from the image pickup apparatus to recognize the image pickup apparatus, a recognizing part arranged to recognize the image pickup apparatus in response to the device recognition attribute information, and a control part arranged to send the external signal to the image pickup apparatus through the communication part to control the color bit number of the digital image signal according to a result of recognition of the recognizing part. In the rejection of claim 35, with respect to these claimed features, the Examiner relies on the Takizawa, et al. patent as follows:

> "Takizawa discloses...the external apparatus (Takizawa: column 4, lines 57-60), comprising: a communication part arranged to receive said device recognition attribute information from said image pickup apparatus to recognize said image pickup apparatus (Takizawa: column 3, lines 60-64); a recognizing part arranged to recognize the image pickup apparatus in response to said device recognition attribute information (Takizawa: column 3, lines 64-65); and a control part arranged to send the external signal to said image pickup apparatus through said communication part to control said digital image signal according to a result of recognition by said recognition by said recognizing part (Takizawa: column 3, lines 51-62)..."

The Examiner again cites the same passages of the Takizawa, et al. reference as with respect to claim 29, to support the argument that Takizawa, et al., disclose receiving of the device recognition attribute information by the external apparatus and sending an external signal by the external apparatus to control the digital image according to a result of recognition. As discussed above with respect to claim 29, the Takizawa, et al. patent fails to teach or suggest the device recognition attribute information, and the passages cited by the Examiner are completely silent as to the device recognition attribute information being sent to, or being received by, the external apparatus. Consequently, there is also no teaching or suggestion in the Takizawa, et al. patent of recognizing the image pickup apparatus by the recognizing part of the external apparatus in response to the device recognition attribute information. As also discussed above, there is nothing taught or suggested in the cited art of receiving an external signal by the interface part to control the color bit number of the digital image signal according to a result of recognition, and thus the cited art also fails to teach or suggest a control part of an external apparatus arranged to send the external signal to the image pickup apparatus to control the color bit number of the digital image signal according to a result of recognition.

Accordingly, claim 35 is patentable over the cited art for reciting these features.

On Behalf of Claim 37

As above-indicated, claim 37 mentions the features of claim 29 of a color bit number converting part arranged to convert color bit number of the digital image signal in response to an external signal, a device recognition attribute information memory for storing device recognition

attribute information, and an interface part arranged to send the device recognition attribute information to the image signal processing apparatus and receive the external signal with which the color bit number of the digital image signal is controlled using the color space information according to a result of recognition by the external apparatus. With respect to these mentioned features, the Examiner has basically repeated his reasoning underlying the rejection of independent claim 29. Accordingly, for like reasons as discussed above with respect to claim 29, these mentioned features of claim 37 are patentable over the cited art.

Claim 37 claims features analogous to those claimed in claim 35 of receiving the device recognition attribute information from the image pickup apparatus, recognizing the image pickup apparatus in response to the device recognition attribute information and sending the external signal to the image pickup apparatus to control the color bit number of the digital image signal according to a result of the recognizing. Therefore, for the same reasons as discussed above with respect to claim 35, claim 37 is patentable based on these claimed features.

On Behalf of Claim 43

Claim 43 recites features similar to certain of those recited in claim 29, including a color bit converting circuit that converts color bit number according to a conversion memory and an interface that receives an external instruction to change the color bit number. With respect to these claimed features, the Examiner has basically repeated his reasoning underlying the rejection of independent claim 29.

As argued above with respect to claim 29, the cited art of record fail to teach or suggest converting the color bit number of the digital image signal. In addition, there is no teaching or

suggestion in the Takizawa, et al. or the Lightbody, et al. patents of such color bit number conversion being according to a conversion memory. Moreover, as argued with respect to claim 29, there is no teaching or suggestion in the cited art of an external signal with which the color bit number of the digital image signal is controlled. Similarly, there is nothing taught or suggested in Takizawa, et al. or in Lightbody, et al. of an external instruction to change the color bit number. Accordingly, for like reasons as discussed with respect to claim 29, claim 43 is also patentable over the cited art.

On Behalf of Claim 45

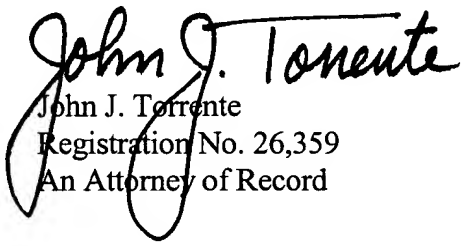
Claim 45 recites the features analogous to those recited in claim 43 and, as above-indicated, features similar to those recited in claim 29, including color bit number converting for converting color bit number according to an output of a conversion memory, and interfacing for receiving an external instruction to change the color bit number. With respect to these claimed features, the Examiner has basically repeated his reasoning underlying the rejection of independent claims 29 and 43. Accordingly, for like reasons as discussed with respect to claims 29 and 43, claim 45 is patentable over the cited art.

CONCLUSION

In conclusion, the Board is requested to reverse the decision of the Examiner as respects the final rejections of the argued claims and, on that basis alone, to accordingly find all claims on appeal patentable.

August 29, 2005

Respectfully submitted,



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PATENT
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS AND PATENT INTERFERENCES

Applicant	:	Motohiro Ishikawa et al.
Serial No.	:	08/682,997
For	:	IMAGE PICKUP APPARATUS
Filed	:	July 18, 1996
Examiner	:	Anand Shashikant Rao
Art Unit	:	2613

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPENDIX TO APPLICANTS' BRIEF ON APPEAL

This Appendix sets forth the claims on appeal, namely, claims 29-46.

Claim 29 (Rejected): An image pickup apparatus comprising:

an image pickup device for forming a digital image signal;

a color space information memory that stores color space information;

a color bit number converting part arranged to convert color bit number of said digital image signal in response to an external signal from an external apparatus;

a device recognition attribute information memory for storing device recognition attribute information; and

an interface part arranged to communicate with the external apparatus,

wherein said interface part sends said device recognition attribute information to said external apparatus,

then said interface part receives said external signal with which the color bit number of said digital image signal is controlled using said color space information according to a result of recognition by said external apparatus.

Claim 30 (Rejected): An image pickup apparatus according to claim 29, wherein said color bit number converting part converts color space according to the external signal.

Claim 31 (Rejected): An image pickup apparatus according to claim 29, wherein said external apparatus comprises a PC.

Claim 32 (Rejected): An image pickup apparatus according to claim 31, wherein said image pickup apparatus is directly connectable with said PC.

Claim 33 (Rejected): An image pickup method, comprising:

picking up of an image to form a digital image signal;

converting color bit number of said digital image signal in response to an external signal from an external apparatus;

storing device recognition attribute information in a device recognition attribute information memory;

storing a color space information in a color space information memory;

sending said device recognition attribute information to said external apparatus through an interface part; and

receiving said external signal with which the color bit number of said digital image signal is controlled using said color space information according to a result of recognition

by said external apparatus.

Claim 34 (Rejected): An image pickup method according to claim 33, wherein said converting includes converting color space according to the external signal.

Claim 35 (Rejected): An image signal processing apparatus electrically connectable to an image pickup device that forms a digital image signal,

wherein said image pickup apparatus comprises a color bit number converting part arranged to convert color bit number of said digital image signal in response to an external signal,

a device recognition attribute information memory for storing device recognition attribute information,

a color space information memory that stores color space information, and

an interface part arranged to send said device recognition attribute information to said image signal processing apparatus and receive said external signal with which the color bit number of said digital image signal is controlled using said color space information according to a result of recognition by said external apparatus, comprising:

a communication part arranged to receive said device recognition attribute information from said image pickup apparatus to recognize said image pickup apparatus;

a recognizing part arranged to recognize the image pickup apparatus in response to said device recognition attribute information; and

a control part arranged to send the external signal to said image pickup apparatus through said communication part to control the color bit number of said digital image signal according to a result of recognition by said recognizing part.

Claim 36 (Rejected): An image signal processing apparatus according to claim 35, wherein said color bit number converting part converts color space according to the external signal.

Claim 37 (Rejected): An image signal processing method for processing a digital image signal received from an image pickup device that forms a digital image signal, wherein said image pickup apparatus comprises:

a color bit number converting part arranged to convert color bit number of said digital image signal in response to an external signal,

a device recognition attribute information memory for storing device recognition attribute information,

a color space information memory that stores color space information, and

an interface part arranged to send said device recognition attribute information to said image signal processing apparatus and receive said external signal with which the color bit number of said digital image signal is controlled using said color space information according to a result of recognition by said external apparatus, comprising:

receiving said device recognition attribute information from said image pickup apparatus;

recognizing the image pickup apparatus in response to said device recognition attribute information; and

sending the external signal to said image pickup apparatus to control the color bit number of said digital image signal according to a result of the recognizing.

Claim 38 (Rejected): An image signal processing method according to claim 37,

wherein external signal controls the color space of said digital image signal according to the result of the recognizing.

Claim 39 (Rejected): An image pickup apparatus according to claim 29, further comprising:

said color space information memory stores a plurality of kinds of color space information, and

said color bit number converting part converts the color bit number of said digital image signal using a selected color space information, and further comprising:

a selecting part that selects color space information among the plurality of kinds of color space information in response to an external signal from an external apparatus.

Claim 40 (Rejected): An image pickup method according to claim 33, further comprising:

storing a plurality of kinds of color space information in said stores color space information memory;

selecting color space information among the plurality of color space information in response to an external signal from an external apparatus; and

converting color bit number of said digital image signal using the selected color space information.

Claim 41 (Rejected): An image signal processing apparatus according to claim 35, wherein

said color space information memory stores a plurality of kinds of color space information, and

an interface part arranged to send said device recognition attribute information to said image signal processing apparatus and receive said external signal with which the color bit number of said digital image signal is controlled using a selected color space information according to a result of recognition by said external apparatus, and further comprising

a selecting part that selects color space information among the plurality of color space information in response to said device recognition attribute information.

Claim 42 (Rejected): An image signal processing method according to claim 37, wherein

said interface part arranged to send said device recognition attribute information to said image signal processing apparatus and receive said external signal with which the color bit number of said digital image signal is controlled using a selected color space information according to a result of recognition by said external apparatus,

said image pickup apparatus further comprising:

a color space information memory that stores a plurality of kinds of color space information, and

a selecting part that selects color space information among the plurality of color space information in response to said device recognition attribute information.

Claim 43 (Rejected): An image pickup apparatus comprising:

an image sensor that converts an optical image into an image signal;

a color bit number converting circuit that converts color bit number according to a conversion memory; and

an interface that receives an external instruction to change the color bit number.

Claim 44 (Rejected): An image pickup apparatus according to claim 43, wherein said memory includes a lookup table.

Claim 45 (Rejected): An image pickup method comprising:

image sensing by converting an optical image into an image signal;

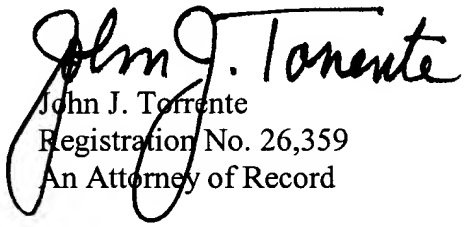
color bit number converting for converting color bit number according to an output of a conversion memory; and

interfacing for receiving an external instruction to change the color bit number.

Claim 46 (Rejected): An image pickup method according to claim 45, wherein the memory includes a lookup table.

August 29, 2005

Respectfully submitted,



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